

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (currently amended) A method of generating an isosteric structure of a polypeptide at least partially containing D-amino acids from 3D-coordinates and sequence information of an L-configured ~~L-configured~~ precursor having an N-terminal amino group or substituted amino group, a C-terminal carboxy group or a carboxy derivative, a backbone and L-amino acid side chains, and comprising ~~the steps of~~ [[-]] at least partially replacing backbone CO groups with NH groups and vice versa, [[-]] while keeping fixed the 3D-coordinates of the precursors L-amino acid side chains, the N-terminal amino group or substituted amino group and the C-terminal carboxy group or carboxy derivative.

2. (currently amended) The method according to claim 1 comprising ~~the steps of~~ at least partially replacing backbone CO groups with NH groups and vice versa, [[-]] while keeping the 3D-coordinates of the precursor's L-amino acid side chains fixed, and replacing the N-terminal amino group or substituted amino group by a carboxy group or carboxy derivative and/or replacing the C-terminal carboxy group or carboxy derivative by an amino group or substituted amino group.

3. (currently amended) The method of claim 1, ~~according to claims 1-2~~ wherein all backbone CO groups of the precursor are replaced by NH groups and vice versa.

4. (currently amended) The method of claim 1, ~~according to claims 1-3~~, characterized by ~~[[-]]~~ at least partially replacing the proline residues or proline residues and their adjacent neighboring ~~neighbouring~~ residue in the structure and sequence of the precursor by organic molecules as building blocks mimicking the conformational properties of proline or of proline and its immediately neighboring ~~neighbouring~~ residue in the newly configured backbone.

5. (currently amended) The method of claim 1 ~~according to claims 1 to 4~~ comprising the steps according to figure 1.

6. (currently amended) The method of claim 1 ~~according to claims 1-5~~ conducted on a computer device.

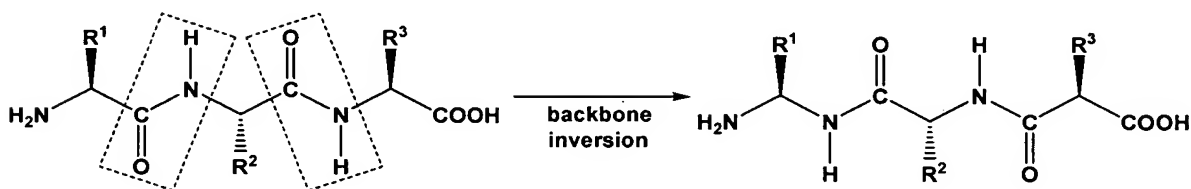
7. (currently amended) A method of generating a polypeptide comprising at least one D-amino acid and/or artificial amino acid, the method comprising ~~the steps of~~ obtaining an isosteric structure by ~~[[a]] the method of claim 1 any of claims 1 to 6 and~~ synthesizing the polypeptide of said isosteric structure.

8. (currently amended) The method of claim 7 ~~[[or 8]]~~, wherein the polypeptide consists of D-amino acids and/or artificial amino acids.

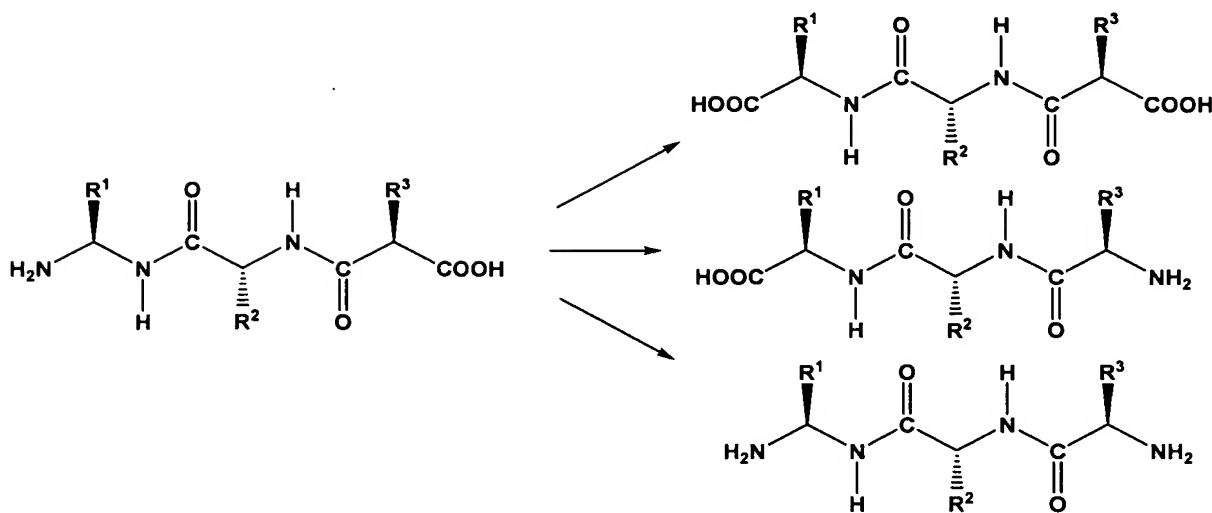
9. (currently amended) A polypeptide obtainable by ~~[[a]] the method of claim 1 according to claims 1-8.~~

10. (currently amended) The polypeptide ~~according to~~ of claim 9 having less than 100 residues, ~~in particular 60 or less, or 40 or less residues but at least 7 residues.~~

11. (currently amended) The polypeptide of claim 9 ~~according to claims 9-10~~ being characterized by the replacement of backbone CO with NH groups and vice versa, while C-terminal carboxy and N-terminal amino function are not changed, as illustrated ~~and exemplified non-exclusively~~ in Formula 1:

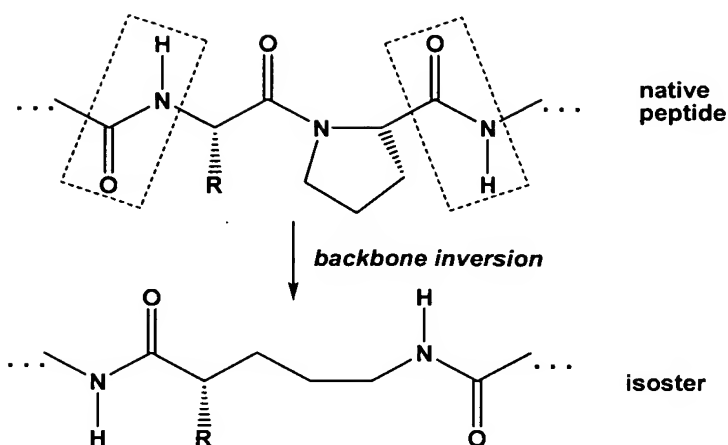


12. (currently amended) The polypeptide of claim 9 ~~according to claim 9-11~~, in which either the terminal amino group is replaced by a Carboxy-group and/or the terminal carboxy group is replaced by an amino-group or in the which N- and C-terminus are exchanged with each other as illustrated ~~and exemplified non-exclusively~~ in Formula 2:

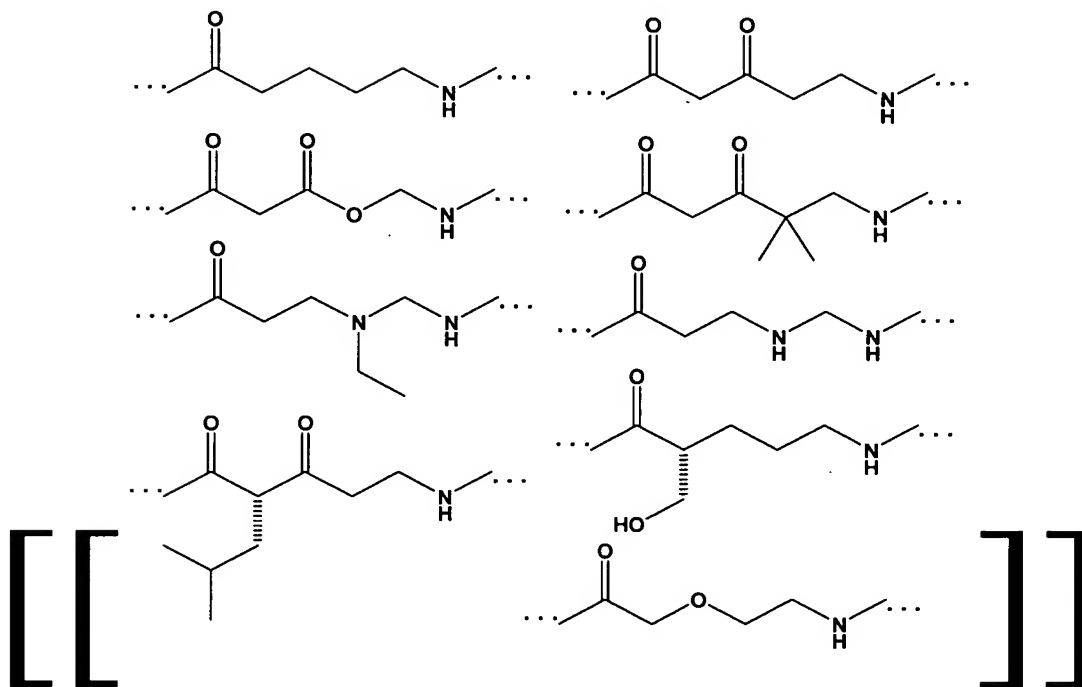


13. (currently amended) The polypeptide of claim 9 ~~according to claims 9-12~~, wherein at least one proline residue of the precursor is replaced by glycine.

14. (currently amended) The polypeptide of claim 9 ~~according to claims 9-13~~, in which 5-aminovaleric acid and its derivatives described by the generic formula $\text{---}(\text{CO})\text{---}\text{X}^1\text{---}\text{X}^2\text{---}\text{X}^3\text{---}\text{X}^4\text{---}\text{NH---}$, wherein X^1 , X^2 , X^3 , and X^4 are independently selected from CH_2 , $(\text{C}=\text{O})$, NH , NR , O , (CHR) , or (CR_2) , and wherein R is an amino group, an alcohol, halogen or any organic residue are used to replace a proline residue and its adjacent neighboring-neighbouring residue in the precursor sequence, as ~~non-exclusively~~ illustrated by ~~Formulas~~ Formula 4, ~~demonstrating the use of 5-aminovaleric acid as building block, and 5, showing the use of exemplary, non-exclusive derivatives of 5-aminovaleric acid as building blocks.~~ Formula 4:

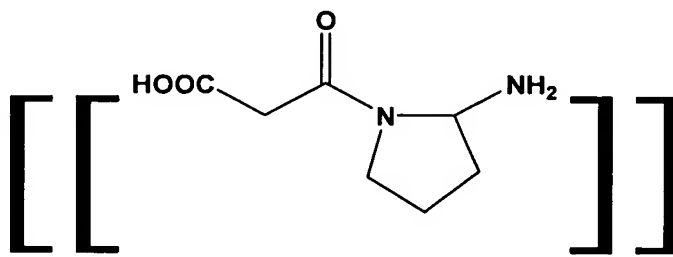


Formula 5:

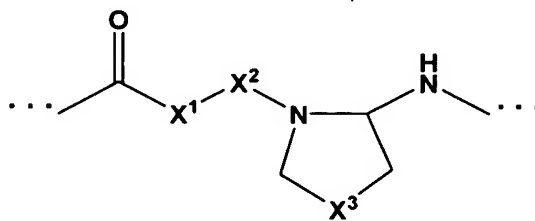


15. (currently amended) A compound having ~~[[the]]~~ Formula 7, ~~in particular 3-~~
~~(2S-Allyloxycarbonyl-amino-pyrrolidin-1-yl)-3-oxo-propionic acid (Formula 6)~~ wherein
X¹, X² and X³ are independently selected from CH₂, (C=O), O, S, NH, NR, (CHR), or
(CR₂), and wherein R is an amino group, an alcohol, halogen or any organic residue;
~~molecules described by the generic formula are non-exclusively illustrated in Formula 8.~~

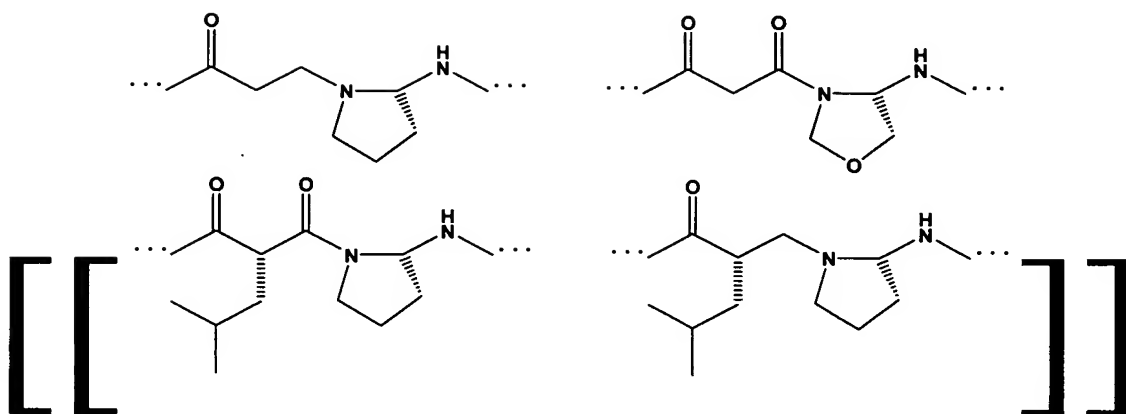
~~Formula 6:~~



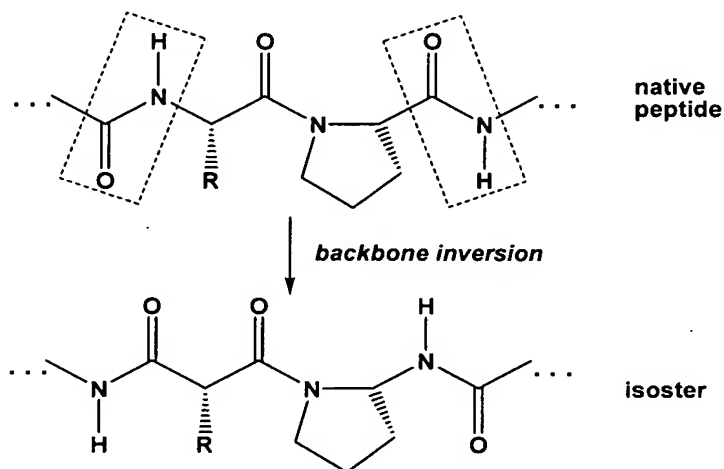
wherein Formula 7 is:



~~Formula 8~~

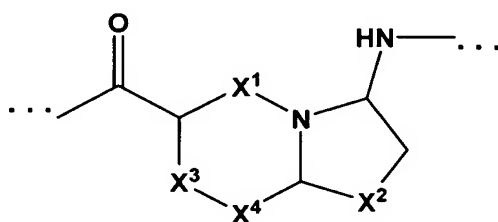


16. (currently amended) The polypeptide of claim 9 ~~according to claims 9-15~~, in which a building block according to claim 15 is used to replace comprising a replacement of at least one proline residue and its immediately neighboring-neighbouring residue as illustrated ~~non-exclusively~~ in Formula 9:

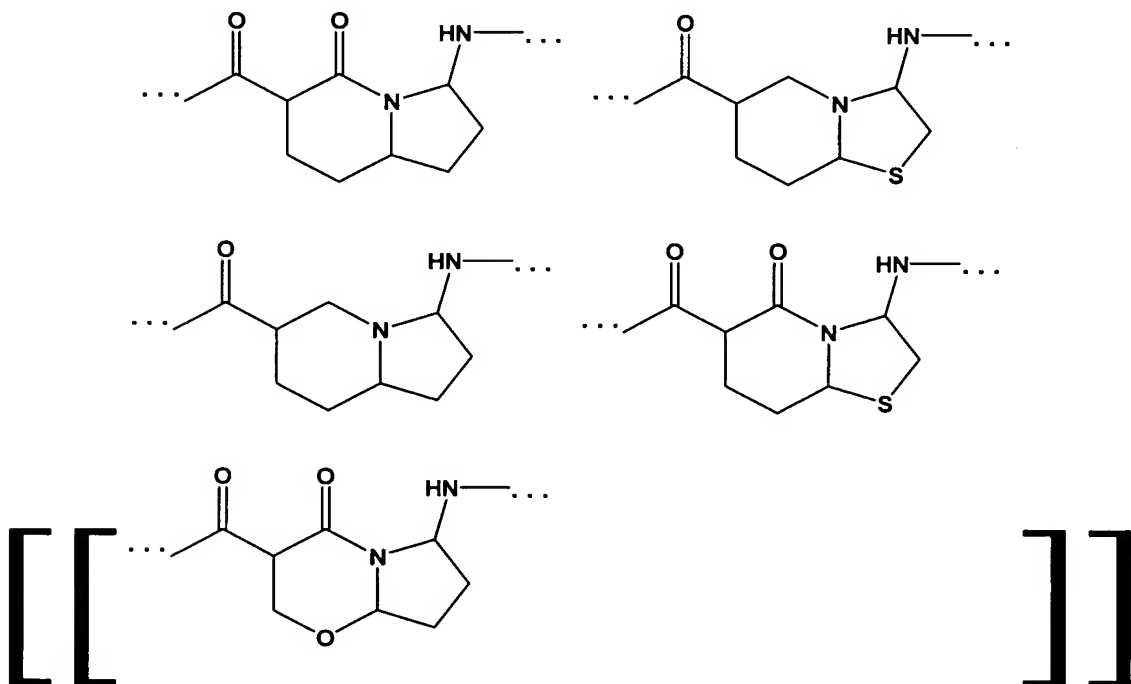


17. (currently amended) A compound of Formula 10, wherein X^1 , X^2 , X^3 and X^4 are independently selected from CH_2 , $(C=O)$, O , S , NH , NR , (CHR) , or (CR_2) , and wherein R is an amino group, an alcohol, halogen or any organic residue, ~~whereby examples of respective molecules are non-exclusively shown in Formula 11.~~

wherein Formula 10 is:



Formula 11



18. (currently amended) The polypeptide of claim 14 ~~according to claims 9-14,~~
~~16, in which a building block according to claim 15 is used to replace~~ comprising a
replacement of at least one proline residue and its immediately neighboring-neighbouring
residue.

19. (currently amended) The polypeptide ~~obtainable by~~ of claim 9 ~~and using~~
further comprising at least one or a free combination of the compounds of Formula 5
~~building blocks specified in claims 12-16 as substitute for a proline or for a proline and~~
its immediately neighboring-neighbouring residue.

20. (currently amended) The polypeptide of claim 9 ~~according to claims 9-19,~~
which is modified by acetylation of the N-terminus or amidation of the C-terminus or by
acetylation of the N- terminus and amidation of the C-terminus.

21. (currently amended) The polypeptide of claim 9 ~~according to claims 9-20,~~
which is modified by extension of the precursor sequence by non-binding amino acids at
either the C-terminus or at the N-terminus or at both termini, whereby the number of
residues added in total is 15 or less, ~~in the preferred case 6 or less.~~

22. (currently amended) The polypeptide of claim 9 ~~according to claims 9-20,~~ in
which one or more amino acid residues other than proline are substituted by conservative
exchange using physicochemically related natural or unnatural amino acid residues,
while the binding behavior ~~behaviour~~ and structure required for binding are maintained.

23. (original) A polypeptide comprising at least one D-amino acid and/or artificial amino acid and 5-aminovaleric acid.

24. (currently amended) [[A]] The polypeptide of claim 23, comprising a sequence of a D-amino acid followed by 5-aminovaleric acid followed by a D-amino acid.

25. (currently amended) [[A]] The polypeptide of claim 23 ~~or 24~~ comprising ~~consisting of~~ D-amino acids and/or artificial amino acids and at least one 5-aminovaleric acid.

26. (currently amended) [[A]] The polypeptide of claim 23 ~~any of claims 23 to 25~~, wherein the 5-aminovaleric acid is substituted by a compound of Formula 7 ~~building block of any one of claims 14, 15 and/or 16~~.

27. (currently amended) A polypeptide of the amino acid sequence:

~~ynnignlimqldlllhelqltkkts~~ YNNIGNLIMQLDLLLHELQLQTKKTS.

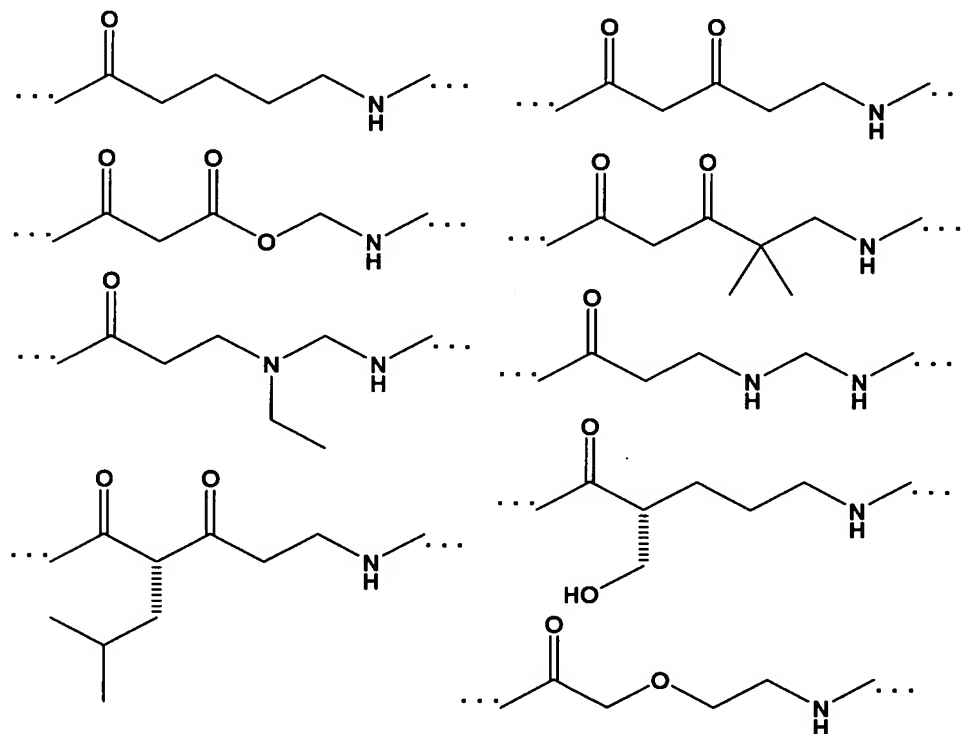
28. (currently amended) A method for ~~Use of compounds according to claims 9-22 for vaccination or for diagnostic, pharmaceutical or cosmetic purposes~~ using the polypeptide of claim 9.

29. (currently amended) A pharmaceutical preparation ~~Pharmaceutical~~
~~preparations comprising the polypeptide a compound of claim 9 according to claims 9-~~
22.

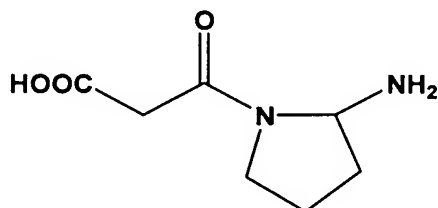
30. (new) The polypeptide of claim 10 having 60 residues or less.

31. (new) The polypeptide of claim 10 having 40 residues or less, but at least 7
residues.

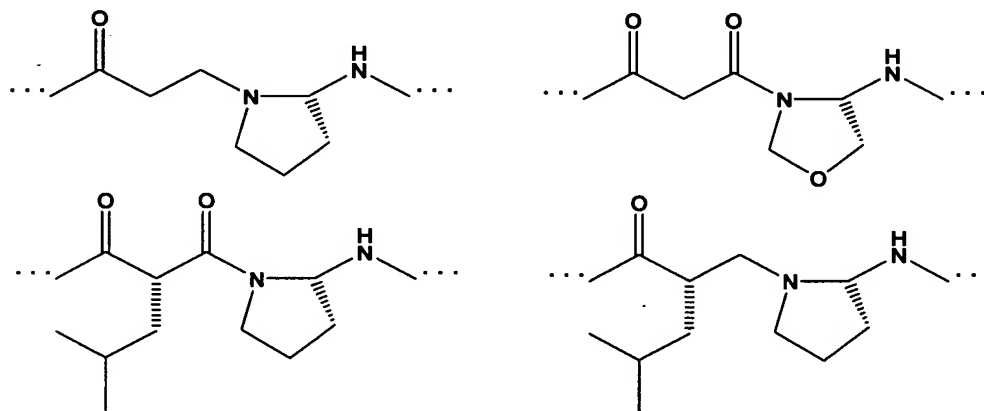
32. (new) The polypeptide of claim 14, wherein said polypeptide is selected from
the group of polypeptides of Formula 5:



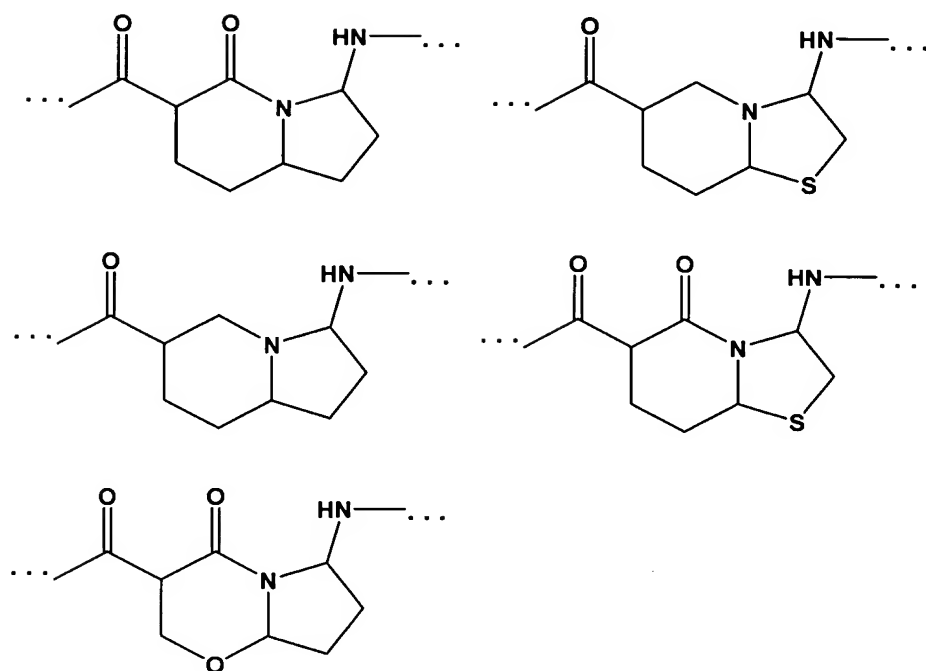
33. (new) The compound of claim 15, wherein said compound is 3- (2S-Allyloxycarbonyl-amino-pyrrolidin-1-yl)-3-oxo-propionic acid (Formula 6)



34. (new) The compound of claim 15, wherein said compound is selected from the group of compounds of Formula 8:



35. (new) The compound of claim 17, wherein said compound is selected from the group of compounds of Formula 11:



36. (new) The polypeptide of claim 21, wherein the number of residues added in total is 6 or less.